AMENDMENTS TO THE CLAIMS:

The following listing of claims supersedes all prior versions and listings of claims in this application:

1. (Currently Amended) A method of global motion estimation between frames of a motion-compensated inter-frame encoded video sequence, each frame of the sequence having a plurality of motion vectors encoded therein relating [[the]] sub-parts of one frame to sub-parts of a preceding and/or succeeding frame of the sequence; the method comprising:

using digital signal processing circuits including a computer-readable memory circuit connected to receive said encoded video sequence and configured to process said sequence [[by]], for a particular inter-frame encoded frame, by:

a) decoding the motion vectors for sub-parts of the frame;

b) selecting N sets of the sub-part motion vectors, wherein N is an integer value greater than 1;

c) calculating a motion estimation for each set of sub-part motion vectors;

d) calculating a median squared error value for each motion estimation; [[and]]

e) selecting the motion estimation with the least median squared error value as that representative of the global motion of the entire frame with respect to a preceding or succeeding entire anchor frame; and

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f) storing or outputting said selected motion estimation for use in registering the image of said frame with the image of said anchor frame.

2. (Currently Amended) A method according to claim 1, and further comprising the step of excluding certain of said sub-part motion vectors with predetermined characteristics from being selected as a member of one of the *N* sets.

3. (Currently Amended) A method according to claim 2, wherein the excluded sub-part motion vectors include those motion vectors from one or more areas substantially around the boundary of the frame.

4. (Currently Amended) A method according to claim 2, wherein the excluded sub-part motion vectors include those motion vectors whose value is substantially zero.

5. (Currently Amended) A method according to claim 1, wherein the selecting step b) further comprises randomly selecting *s* sub-part motion vectors from the available sub-part motion vectors for each of the *N* sets, wherein *s* is the minimum number for sufficiently estimating a geometrical transformation.

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6. (Previously Presented) A method according to claim 1, and further comprising:

f) testing the selected motion estimation representative of the global motion; and

g) outputting the selected motion estimation as being representative of the global motion of the frame if the test is passed.

7. (Original) A method according to claim 6, wherein the test comprises comparing the selected motion estimation with a threshold value, wherein the test is passed if the parameters do not exceed the threshold value.

8. (Currently Amended) A method according to claim 6, wherein if the test is failed, the method further comprises:

h) determining a motion estimation representative of the global motion of the entire frame with respect to a preceding or succeeding other entire frame;

i) determining a motion estimation representative of the global motion of the other entire frame with respect to the entire anchor frame; and

j) accumulating the motion estimations to give an overall motion estimation substantially representative of the global motion of the entire frame with respect to the entire anchor frame.

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9. (Cancelled)

10. (Currently Amended) A method according to claim 6, wherein if the test is failed, the method further comprises:

interpolating between the motion estimations of adjacent <u>entire</u> frames to give an interpolated motion estimation which is then output as the motion estimation representative of the global motion of the <u>entire</u> frame.

11. (Currently Amended) A method of generating panoramic images from a motion-compensated inter-frame encoded video sequence, the method comprising<u>:</u>

using digital signal processing circuits including a computer-readable memory circuit connected to receive said encoded video sequence and configured to process said sequence [[by:]] <u>wherein,</u> for each frame of the sequence, ~~determining~~ the global motion of each <u>entire</u> frame <u>is determined</u> with respect to [[its]] <u>an entire</u> anchor frame by estimating global motion between <u>entire</u> frames of a motion-compensated inter-frame encoded video sequence <u>by</u>:

a) decoding [[the]] <u>included</u> motion vectors <u>for sub-parts</u> of the frame;

b) selecting *N* sets of the <u>sub-part</u> motion vectors, wherein *N* is an integer value greater than 1;

c) calculating a motion estimation for each set;

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d) calculating a median squared error value for each motion estimation;

e) selecting the motion estimation with the least median squared error value as that representative of the global motion of the entire frame with respect to a preceding or succeeding entire anchor frame; and

f) generating and storing or outputting at least one panoramic image representing the frames of the video sequence using the global motion estimations thus determined.

12. (Currently Amended) A method according to claim 11, wherein the generating step further comprises:

selecting a particular frame of the sequence as a reference frame, the plane of the reference frame being a reference plane;

for each frame other than the reference frame, accumulating the global motion estimations from each entire frame back to the entire reference frame;

warping each frame other than the reference frame onto the reference plane using the accumulated global motion estimations to give one or more pixel values for each pixel position in the reference plane; and

for each pixel position in the reference plane, selecting one of the available pixel values for use as the pixel value in the panoramic image.

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13. (Original) A method according to claim 12, wherein the selecting step comprises selecting a substantially median pixel value from the available pixel values for use in a background panoramic image.

14. (Previously Presented) A method according to claim 12, wherein the selecting step comprises selecting a substantially most different pixel value from the available pixel values for use in a foreground panoramic image.

15. (Previously Presented) A method according to claim 12, wherein the selecting step comprises:

calculating the mean pixel value of the available pixel values;

calculating the L1 distance between each available pixel value and the calculated mean pixel value; and

select the pixel value with the median L1 distance for use in a background panoramic image.

16. (Previously Presented) A method according to claim 12, wherein the selecting step comprises:

calculating the mean pixel value of the available pixel values;

calculating the L1 distance between each available pixel value and the calculated mean pixel value; and

select the pixel value with the maximum L1 distance for use in a foreground panoramic image.

17. (Currently Amended) A system for global motion estimation between frames of a motion-compensated inter-frame encoded video sequence, each frame of the sequence having a plurality of motion vectors encoded therein relating sub-parts of the frame to sub-parts of a preceding and/or succeeding frame of the sequence; the system comprising:

a) a video decoder arranged in use to decode the sub-part motion vectors of each inter-frame encoded frame; and

b) a video processing means arranged in use to:

i) select *N* sets of the motion vectors, wherein *N* is an integer value greater than 1;

ii) calculate a motion estimation for each set;

iii) calculate a median squared error value for each motion estimation; and

iv) select the motion estimation with the least median squared error value as that representative of the global motion of the entire frame with respect to a preceding or succeeding entire anchor frame.

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18. (Currently Amended) A system according to claim 17, wherein the video processing means further comprises motion vector exclusion means for excluding certain sub-part motion vectors with predetermined characteristics from being selected as a member of one of the N sets.

19. (Currently Amended) A system according to claim 18, wherein the excluded sub-part motion vectors include those sub-part motion vectors from one or more areas substantially around the boundary of the frame.

20. (Currently Amended) A system according to claim 18, wherein the excluded sub-part motion vectors include those sub-part motion vectors whose value is substantially zero.

21. (Currently Amended) A system according to claim 17, wherein the video processing means is further arranged in use to:

randomly select s sub-part motion vectors from the available sub-part motion vectors for each of the N sets, wherein s is the minimum number for sufficiently estimating a geometrical transformation.

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22. (Currently Amended) A system according to claim 17, and further comprising:

c) estimation testing means arranged in use to test the motion estimation selected as being representative of the global motion; and

d) output means for outputting the motion estimation selected as being representative of the global motion of the <u>entire</u> frame if the test is passed.

23. (Original) A system according to claim 22, wherein the estimation testing means is further arranged to compare the motion estimation with a threshold value, wherein the test is passed if the motion estimation does not exceed the threshold value.

24. (Currently Amended) A system according to claim 22, wherein if the estimation testing means determines that the test is failed, the video processing means is further arranged to:

v) determine a motion estimation representative of the global motion of the <u>entire</u> frame with respect to a preceding or succeeding other <u>entire</u> frame;

vi) determine a motion estimation representative of the global motion of the other <u>entire</u> frame with respect to the <u>entire</u> anchor frame; and

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vii) accumulate the motion estimations to give an overall motion estimation substantially representative of the global motion of the <u>entire</u> frame with respect to the <u>entire</u> anchor frame.

25. (Currently Amended) A system according to claim 22, and further comprising:

estimation interpolation means arranged to interpolate between the motion estimations of adjacent frames to give an interpolated motion estimation which is then output as the motion estimation representative of the global motion of the <u>entire</u> frame.

26. (Currently Amended) A system for generating panoramic images from a motion-compensated inter- frame <u>inter-frame</u> encoded video sequence, comprising:

a system for global motion estimation between <u>entire</u> frames of a motion-compensated inter-frame encoded video sequence as claimed in claim 17, and further arranged to provide global motion estimations for each <u>entire</u> frame; and

panoramic image generating means for generating at least one panoramic image representing the frames of the video sequence using the global motion estimations thus determined.

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27. (Original) A system according to claim 26, wherein the panoramic image generating means is further arranged in use to:

select a particular frame of the sequence as a reference frame, the plane of the reference frame thereby being a reference plane;

for each frame other than the reference frame, accumulate the global motion estimations from each frame back to the reference frame;

warp each frame other than the reference frame onto the reference plane using the accumulated global motion estimations to give one or more pixel values for each pixel in the reference plane; and

for each pixel position in the reference plane, select one of the available pixel values for use as the pixel value in the panoramic image.

28. (Original) A system according to claim 27, wherein the panoramic image generating means is further arranged to select a substantially median pixel value from the available pixel values for use in a background panoramic image.

29. (Previously Presented) A system according to claim 26, wherein the panoramic image generating means is further arranged to select a substantially most different pixel value from the available pixel values for use in a foreground panoramic image.

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30. (Previously Presented) A system according to claim 27, wherein the panoramic image generating means is further arranged to:

calculate the mean pixel value of the available pixel values;

calculate the L1 distance between each available pixel value and the calculated mean pixel value; and

select the pixel value with the median L1 distance for use in a background panoramic image.

31. (Previously Presented) A system according to claim 27, wherein the panoramic image generating means is further arranged to:

calculate the mean pixel value of the available pixel values;

calculate the L1 distance between each available pixel value and the calculated mean pixel value; and

select the pixel value with the maximum L1 distance for use in a foreground panoramic image.

32. (Previously Presented) A computer-readable storage medium containing a computer program or suite of programs arranged such that when executed on a

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computer system the program or suite of programs causes the computer system to

perform the method of claim 1.

    33. (Cancelled)